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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/253,245 | 02/19/1999 | GARY ALLAN HARPELL | 30-4496 | 5377 |

7590 07/25/2003
VIRGINIA S ANDREWS
ALLIEDSIGNAL INC
P O BOX 31
PETERSBURG, VA 23804

EXAMINER

COLE, ELIZABETH M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1771

28

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/253,245 | | HARPELL ET AL. | |
| | Examiner | | Art Unit | |
| | Elizabeth M Cole | | 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 19, 20, 23, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19, 20, 23, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: |

1. Claims 1-17, 19-20, 23, 27-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. With regard to the limitation that the composite is ballistically effective, the specification refers to ballistic resistance, ballistic efficiency and ballistic effectiveness, but fails to set forth a particular definition or standard of what would parameters would have to be satisfied in order for a composite to be ballistically effective.
2. Claims 1-17, 19-20, 23, 27-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to the limitation that the composite is ballistically effective, the specification refers to ballistic resistance, ballistic efficiency and ballistic effectiveness, but fails to set forth a particular definition or standard of what would parameters would have to be satisfied in order for a composite to be ballistically effective. Therefore, the scope of the claims is vague and indefinite because it is not clear what properties the composite must possess to be considered ballistically effective, i.e., how much protection must it offer against what types of projectiles, etc? Absent a clear definition, it will be assumed that any composite which would offer some resistance to a projectile would be ballistically effective.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-17, 19-23, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schirtzinger, U.S. Patent No. 3,686,048 in view of WO 91/08895 to Li et al. Schirtzinger discloses a material as set forth above. Schirtzinger differs from the claimed material because Schirtzinger et al does not teach the other types of fibers claimed and because Schirtzinger does not teach the claimed ratio of matrix to fibers or the size of the matrix islands. With regard to the types of fibers, Li et al teaches that fibers such as high molecular weight polyethylene, high molecular weight polypropylene and aramid fibers are equivalent to glass fibers for preparing composite materials. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed fibers such as high molecular weight polyethylene or polypropylene or aramid fibers instead of the glass fibers in the material of Schirtzinger. One of ordinary skill in the art would have been motivated to employ the fibers of Li in the material of Schirtzinger since the fibers are taught as being useful in forming composite materials. Since Li teaches the same fibers as the claimed fibers, the fibers of Li would inherently possess the claimed properties such as tenacity and modulus. With regard to the amount of resin employed, although Schirtzinger does not specify the amount, Schirtzinger clearly teaches that enough resin should be used to form a strong fiber array without employing excess resin which would prevent the passage of the resin which is used to form the composite material from fully penetrating the fiber array. See col. 4, lines 23-56. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the amount of resin employed to form the resin bridges through the process of routine experimentation so that an optimum amount of resin was used which allowed for both the formation of a strong array of fibers and the fully impregnation of the fiber array with the resin used to make the composite material.

With regard to the new limitation that the composite is ballistically effective, the specification refers to ballistic resistance, ballistic efficiency and ballistic effectiveness, but fails to set forth a particular definition or standard of what parameters would have to be satisfied in order for a composite to be ballistically effective. Therefore, giving the term its broadest reasonable interpretation in light of the specification, the material of Schirtzinger would necessarily be ballistically effective in that it would necessarily offer at least some resistance to projectiles. With regard to the limitation that the composite is flexible, Schirtzinger teaches that the composite is flexible. See col. 4, lines 24-29.

5. Applicant's arguments filed 5/9/03 have been fully considered but they are not persuasive.

With regard to the art rejection, Applicant argues that Schirtzinger does not teach a ballistically effective composite. However, since the material of Schirtzinger would inherently possess at least some resistance to projectiles, it would be ballistically effective. Additionally, the limitations that the composite is ballistically effective and flexible are found in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In this case, the structural limitations found in the body of the claim are able to stand alone.

With regard to the size of the resin bridges or matrix islands, Schirtzinger teaches resin impregnation of the fiber array in contrast to the present invention which is the preparation of composites. However, Schirtzinger recognizes the amount of resin as being a result effective variable. Schirtzinger recognizes that the amount of resin is related to the strength of the overall

fibrous material. Therefore, it would have been obvious to have selected the proportions of resin through the process of routine experimentation in order to arrive at a fibrous material having the desired strength, depending upon the final use of the composite material.

With regard to the argument that the final material of Schirtzinger is filled with resin, Schirtzinger teaches the claimed structure. That the intended use of the Schirtzinger structure is different than the intended use of the claimed structure does not patentably distinguish the claimed invention.

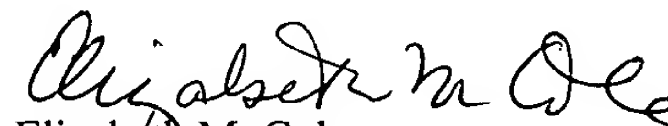
With regard to the 112 2nd paragraph rejection, upon further consideration and in view of Applicant's arguments and amendments, the rejection has been overcome.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (703) 308-0037. The examiner may be reached between 6:30 AM and 5:00 PM Monday through Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (703) 308-2414.

Inquiries of a general nature may be directed to the Group Receptionist whose telephone number is (703) 308-0661.

The fax number for official faxes is (703) 872-9310. The fax number for official after final faxes is (703) 872-9311. The fax number for unofficial faxes is (703) 305-5436.



Elizabeth M. Cole

Primary Examiner

Art Unit 1771

e.m.c

July 17, 2003